



USER MANUAL

Whisper Power Center

Quick Settings Guide



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TABLE OF CONTENTS

1	INTRODUCTION	3
2	WPC – PSCP: QUICK START GUIDE.....	4
2.1	Setting of the language	4
2.2	Adaptation to the source	4
2.3	Adaptation to the battery	5
3	BASIC DISPLAYS	6
4	ACTIVATING AND DEACTIVATING THE WPC	7
5	SETTING OF THE RCC REMOTE CONTROL.....	8
5.1	Setting of the language {5000}	8
5.2	Other languages {5036}.....	8
5.3	Setting of time {5001} and date {5002}.....	8
5.4	User level {5012}.....	9
5.5	Drive the remote control to the user level basic {5019}	9
6	BATTERY SETTINGS	10
6.1	Default battery settings	10
6.2	Battery Temperature Sensor (BTS)	11
6.3	Battery Status Indicator (BSI)	11
7	AC SETTINGS	12
7.1	Smart boost functionality.....	12
7.2	AC input.....	13
7.2.1	<i>User setting:</i> Quick setting of the max current of the ac source	13
7.2.2	Setting of the max current of the ac generator	13
7.2.3	Allow to overrun the maximum input current of the AC source	14
7.2.4	Automatic selection of AC source	14
7.3	AC output.....	16
7.4	AC generator behavior	17
7.5	<i>User settings:</i> Controlling the variable speed genset power demand	18
8	USER SETTING: AUTO START SETTINGS	20
8.1	Enable auto start on the DDC	20
8.2	Auto start on battery voltage	21
8.3	Auto start on battery SOC (only with BSI)	22
8.4	Auto start on AC output power	22
8.5	Enable a silent period	23
8.6	<i>User preference:</i> Dipswitch functions	24
8.6.1	Prohibit automatic start when grid is available.....	24
8.6.2	Preferred input	25
9	NOTES	26

1 INTRODUCTION

The GV-7i is an integrated inverter-charger-variable speed generator solution which has standard factory setting to operate with a AGM battery set of 12V/[tbd]Ah, 24V/[tbd]Ah or 48V/[tbd]Ah. If the auto start/stop cable is connected from the connection board of the WPC to the DDC remote panel input, the auto-start/stop functionality can be enabled on the display.

Settings have been chosen to start the generator if the service set has a low voltage, or if the power consumption is above a certain level. In the default settings, temperature compensation is [not enabled] and the optional BSP (battery status processor) has not been included.

Important: to inhibit automatic starting and stopping of the generator at any time, select Manual mode on the DDC remote panel. Refer to DDC remote panel manual.

The Whisper Power System Control Panel (PSCP) consists of two combined modules: the generator control (upper part), also referred to as DDC remote panel, and the Inverter/Charger Control panel also referred to as RCC panel.

This Quick settings document is meant to highlight the most important settings to cover 90% of the installations and user first needs. For an explanation to operation the PSCP or complete settings of the WPC, please refer to the manual. Most of the settings are determined once at installation. Settings which are likely to be changed by the user under normal use are highlighted in the headings.



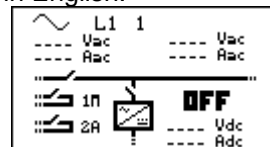
2 WPC – PSCP: QUICK START GUIDE

The remote control RCC gives you access to a many settings possibilities. However, in most cases the setting of two parameters only is required for the perfect running of your installation.

2.1 SETTING OF THE LANGUAGE

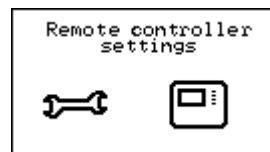
To begin, set your remote control PSCP / RCC for a display of the information in English.

The basic display is:



Press 1 time on the key “arrow downwards” to display the following screen:

Once beyond this screen you can come back to it by means of the key “arrow upwards”.



Press the key SET to enter the remote control settings. The screen of the language choice appears.



Press once more the key SET to modify the current language. The language then appears in reverse video.



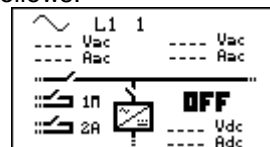
With the keys “arrow upwards” and “arrow downwards” choose the language you wish. Then validate your choice by means of the key SET (OK).

We can now leave the setting of the remote control with the key ESC.

2.2 ADAPTATION TO THE SOURCE

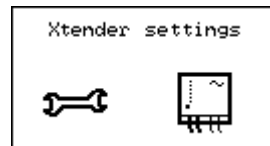
It is a matter of indicating to the WPC the power available to charge the batteries and to supply the users. In order to adapt your installation to the source it is connected to, proceed as follows:

The basic display is:



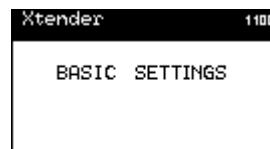
Press 2 times on the key “arrow downwards” to display the following screen:

Once beyond this screen you can come back to it by means of the key “arrow upwards”.



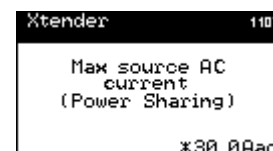
Press the key SET to access to the settings.

Then again on the key SET to access to the basic parameters.



You can now adapt your installation to the source which it is connected to.

Max. current of the AC source (Input limit) {1107}.



When an asterisk (*) is present, it informs you that the selected value corresponds to the one set in factory by default (factory setting).



In case of using the WPC on a public grid, it is actually the value of the circuit breaker on the source side (fuse or breaker).

In a building, this value lies generally between 8 and 16A.

In the case of a shorepower or of a camping terminal, it lies between 2 and 6A.

In case of using the WPC on a genset, you can divide the genset power by the operating voltage (for instance for a genset of 3500VA, or 3500W, and 230V you get $3500/230=15.2$).

Press the key SET to modify the value of this parameter (it appears in reverse video). By means of the keys "arrow upwards" and "arrow downwards" change the value to adapt it to your source and validate your setting with the key SET (OK).

2.3 ADAPTATION TO THE BATTERY

Charge current {1138}

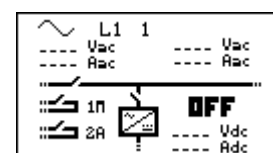
In order that your WPC manages the best possible the energy stored in your batteries and that it charges them optimally, it is necessary to indicate the current which they can be charged with. You will find this value in the technical data provided by your batteries manufacturer.



In the case of lead-acid batteries, one generally uses one tenth or one fifth of the battery capacity value.

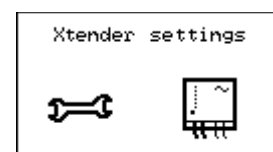
For instance for a 500Ah battery: $500/10=50A$ to $500/5=100A$.

The basic display is:



Press 2 times on the key "arrow downwards" to display the following screen:

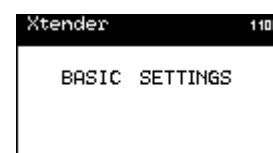
Once beyond this screen you can come back to it by means of the key "arrow upwards".



Press the key SET to access to the settings.

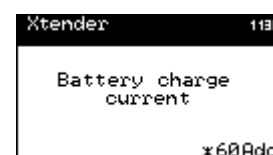
Then again on the key SET to access to the basic parameters.

With the key "arrow downwards", access the menu "Battery and charger cycle".



You are now going to set the charge current for the batteries:

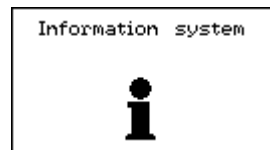
Press the key SET to modify the value of this parameter (it appears in reverse video). With the keys "arrow upwards" and "arrow downwards" change the value to adapt your battery and validate your setting with the key SET (OK).



3 BASIC DISPLAYS

When the remote control is connected to an WPC, it is possible to access to different display menus divided into distinct categories.

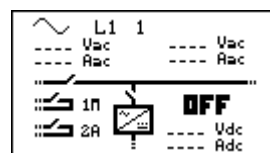
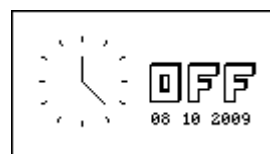
Information on the system



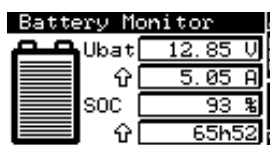
The history of events occurring in the installation



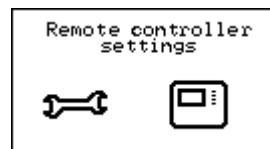
Real time information displays on the operating mode of the installation



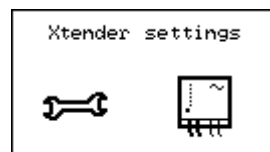
The different measures carried out by the BSP
(Only if a BSP is present)



Adjustment of RCC remote control options



Adjustment of configurations on the WPC(s)



The settings of the BSP

(Only if a BSP is present)



Information

Setting

To go from one display to the other, use the keys UP and DOWN on the RCC remote control.
To visualize or modify the options of one of the basic displays, press the key SET when this one is displayed.

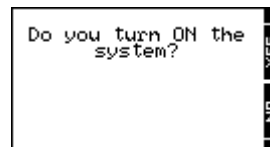


Depending on the components connected to your system, it is possible that other displays complete this serie.

4 ACTIVATING AND DEACTIVATING THE WPC

When one of the displays is visible, it is possible to activate or deactivate the WPC. To do this, simply press the key ESC. The key request on the screen indicates whether you are going to activate or deactivate the unit.

Once the key has been pressed, you must confirm your choice by using the key YES. If you do not want the action to be carried out, it can be cancelled by pressing the NO key.



Note: This is a comprehensive signal and leads to the stoppage or starting of all WPC's connected to the remote control.

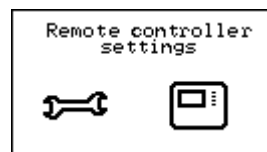


Putting ON or OFF the system can be easily done directly on the WPC with the button:



5 SETTING OF THE RCC REMOTE CONTROL

This screen gives you access to the remote control basic settings. From one of the basic menu items, use the keys UP and DOWN until reaching the item "Adjustment of the remote control", then confirm by using the key SET.

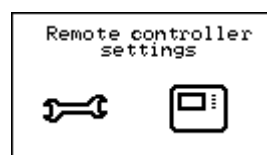


When the item to be modified appears on the screen, press the key SET to be able to modify it. This value then displays in inverse video. Now use the keys UP and DOWN to modify it. Once the correct value has been obtained, confirm by using the SET key or exit without modifying by using the key ESC.

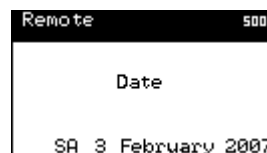


Each configuration has a unique ID displayed top right (see example below) these numbers are indicated between curly brackets in this manual : {xxxx}

EXAMPLE to modify the current date
Go to the following screen using the UP and DOWN keys.
Press the key SET to access the remote control adjustment.



Go to the following screen using the key DOWN.
Press the key SET to modify the configuration



Set the correct date using the keys UP and DOWN
Go to the adjustment of the month using the key SET
Also set the month using the keys UP and DOWN
To complete, go to the year adjustment using the key SET
After having adjusted the year using the keys UP and DOWN,
confirm using the key SET.



5.1 SETTING OF THE LANGUAGE {5000}

The default language is English and the WPC can store up to four languages simultaneously. This configuration allows you to choose one of them.

5.2 OTHER LANGUAGES {5036}

The default available languages in the remote control are: English, French, German and Spanish. It is possible to change the languages memorized in the remote control. For this you must use a SD card with the latest update available on our website (www.whisperpower.eu). Ask your reseller to know what languages are available.

The first language available (English) can not be modified.

- To change a language, follow this process:
- Make sure you have a SD card with the file for the language you wish to use
- Insert the SD card and wait for an possible automatical update of the remote control
- Enter the menu „other languages“ {5036}
- Choose the language you wish to replace (second, third or fourth {5038} {5039} {5040}) and select the new language
- The updating is done automatically

5.3 SETTING OF TIME {5001} AND DATE {5002}

The WPC has a perpetual calendar and an internal clock powered by a backup battery. The correct adjustment of the date and time allows accurate recording of events occurring in the installation as well as

correct use of time-related functions, e.g. the disabling of the auxiliary relays during the night.

5.4 USER LEVEL {5012}

The setting of the user level allows you to choose the access to the WPC according to your level of expertise.

The **INFO ONLY** level may be selected by entering the code:

460081

This level does not allow the WPC configurations to be modified, it only allows information to be displayed on the system.



Use the INFO ONLY level after adjusting the configurations if the remote control is located in a public place or if it is accessible by people who are not authorized to carry out adjustments on your system.
You may change the level at any time to make new adjustments, by entering the appropriate code.

The **BASIC** level allows you to configure basic WPC functions, limiting the field of actions to simple configurations. Please note that the incorrect adjustment of basic configurations may lead to the malfunctioning of the installation. This level is selected by default. To return to this level after a change, enter code:

943274

The **EXPERT** level allows access to more complex WPC configurations and this level of usage may only be used with extensive specialist knowledge. To access the expert level, enter code:

426468

5.5 DRIVE THE REMOTE CONTROL TO THE USER LEVEL BASIC {5019}

You can with this option bring the remote control back to the level “user Basic”.



Use this function at the end of the system setting to go out of the EXPERT mode.

6 BATTERY SETTINGS

6.1 DEFAULT BATTERY SETTINGS

Different battery types require different settings which indicate if the battery is full or empty, for protection values, for charge regulation and auto start/stop criteria. In the following table the parameters are listed which are relevant when installing a battery set (multiply the value by 2 or 4, for 24V and 48V sets):

Parameter		AGM (default)	GEL	Traction 2V 6x	
1138	Battery charge current	Refer to Table 2	Refer to Table 2	Refer to Table 4	Adc
1139	Battery temperature compensation	-4	-4	-4	mV/°C/ cell
1108	Battery undervoltage level without load	11.6	11.6	11.6	Vdc
1109	Battery undervoltage level at full load	10.5	10.5	10.5	Vdc
1190	Battery undervoltage duration before turn off	3	3	3	min
1110	Restart voltage after batteries undervoltage	12	12	12	Vdc
1196	Battery low level for acoustic alarm	10.8	10.8	10.8	Vdc
1195	Max voltage for adaptive low voltage	12.5	12.5	12.5	Vdc
1307	Reset voltage for adaptive correction	13.2	13.2	13.2	Vdc
1298	Increment step of the adaptive low voltage	0.1	0.1	0.1	Vdc
1121	Battery overvoltage level	17	17	17	Vdc
1122	Restart voltage level after an battery overvoltage	16.2	16.2	16.2	Vdc
1140	Battery floating level	13.6	13.6	13.5	Vdc
1143	Battery voltage level 1 to start a new cycle	12.5	12.5	12.5	Vdc
1144	Time period under battery voltage level 1 to start a new cycle	30	30	30	min
1145	Battery voltage level 2 to start a new cycle	12.3	12.3	12.3	Vdc
1146	Time period under battery voltage level 2 to start a new cycle	60	60	60	sec
1149	New cycle priority on absorption and equalization phases	No	No	No	No/Yes
1155	Absorption phase allowed	Yes	Yes	Yes	No/Yes
1156	Battery absorption voltage	14.4	14.4	14.1	Vdc
1157	Absorption duration	2	2	2	hours
1158	End of absorption triggered with current	Yes	Yes	Yes	No/Yes
1159	Current limit to quit the absorption phase	Refer to Table 2	Refer to Table 3	Refer to Table 4	Adc

Table 1 – Battery settings

AGM	55Ah	80Ah	100Ah	145Ah	200Ah	260Ah
Parameter						
1138*	16.5A	24.0A	30.0A	44.0A	60.0A	78.0A
1159	4A	4A	10A	10A	10A	10A

Table 2 – AGM battery settings according to capacity

GEL	100Ah	145Ah	180Ah	225Ah
Parameter				
1138*	20.0A	29.0A	36.0A	45.0A
1159	4A	6A	10A	10A

Table 3 - GEL battery settings according to capacity

Traction	600Ah	800Ah	1000Ah	1200Ah	1500Ah
Parameter					
1138*	240A	320A	400A	480A	600A
1159	10A	10A	10A	10A	10A

Table 4 - Traction battery settings according to capacity

* Note: the maximum setting of parameter 1138 will be equal to the maximum of the battery charge current which the specific WPC model can provide.

6.2 BATTERY TEMPERATURE SENSOR (BTS)

The temperature sensor is available as option. It must be connected to the BTS input on the WPC. The following setting is relevant when using a BTS.

Parameter	Name	Default	
1139	Battery temperature compensation	-4	mV/°C/cell

6.3 BATTERY STATUS INDICATOR (BSI)

When the BSI is connected, the state of the battery is not monitored by voltage only. The BSI estimates the actual capacity of the connected battery and the state of charge by measuring the current with the installed shunt. If the BSI is connected, it is also possible to automatically start and stop the generator according to the state of charge. Refer to the auto start paragraph for the BSI settings

Installation of the BSI is described in its own manual.

7 AC SETTINGS

7.1 SMART BOOST FUNCTIONALITY

A permanent measurement of the input current allows to control the power taken from the AC source. If the load exceeds the maximum power of the AC source connected to the WPC then the Smart-Boost function will compensate the power required at the output.

For example if the max power of the ac generator is set at 3kW but the load is 4kW, then 3kW is taken from the generator and 1kW is taken from the battery.

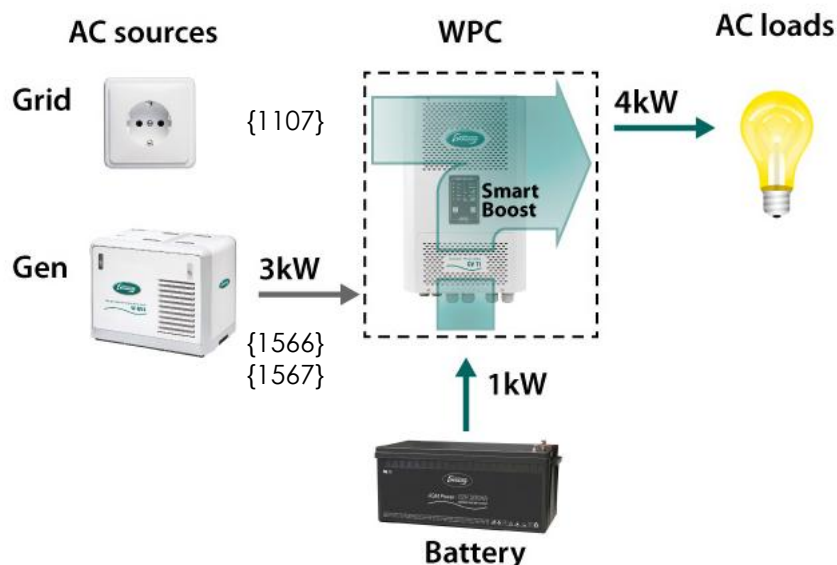


Figure 1 - WPC using the Smart-Boost function

If the load is only 1kW, then the Smart-Boost function will not be used. If the maximum power of the ac source is set at 3kW, then the 1kW load will be powered by the AC source and the 2kW remaining will be used as needed to charge the battery.

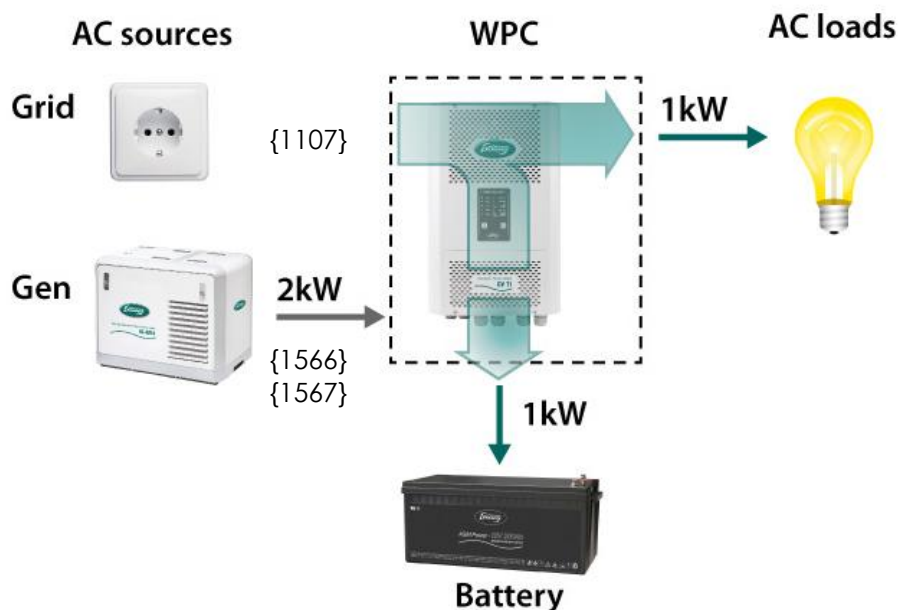


Figure 2 - WPC in charger mode

Four parameters allow controlling this function, which will be explained in more detail in the next sections:

Parameter	Name	Default
1126	Smart Boost allowed	Yes

↳ authorize the use of the Smart Boost function. Set as YES

Parameter	Name	Default
1566	Use an alternate max. input current	Yes

↳ authorize the use of a second energy source at the input of the system. Set as YES

Parameter	Name	Default
1107	Maximum current of AC source (Input limit)	16A

↳ is the value of the input current which can be drawn from the grid. Set according to the size of the circuit breaker or the grid capacity.

Parameter	Name	Default
1567	Second maximum current of AC source (Input limit)	13A

↳ is the value of the input current which can be drawn from the generator. Set according to the size of the circuit breaker or the generator capacity.

7.2 AC INPUT

7.2.1 User setting: Quick setting of the max current of the ac source

Once a system is installed at a fixed location, there is normally no need to change WPC input settings but users of mobile applications have to change the input current when the installation is moved. To ease the use of the WPC for these customers, there is on the RCC a "one button push" access to the parameter {1107} from the default screen. By pressing the SET button it directly goes to the max current of the ac grid source value and it is possible to increase or decrease it with the up or down button.

Parameter	Name	Default	
1107	Maximum current of AC source (Input limit)	16	A



Figure 3- Fast access to set the max current of the ac grid source

7.2.2 Setting of the max current of the ac generator

In the variable speed system GV-7i, the input current limit setting determines the maximum power taken from the generator. By default, the power taken from the generator is limited to 13A (3KW).

Parameter	Name	Default		Model
1567	Second maximum current of AC source (Input limit)	13	A	GV-7i
1567	Second maximum current of AC source (Input limit)	11	A	SC-3.5
1567	Second maximum current of AC source (Input limit)	22	A	SQ-6
1567	Second maximum current of AC source (Input limit)	22	A	SC-6
1567	Second maximum current of AC source (Input limit)	16 – 25	A	If genset power is > 25A, install fuse of 25A or less and limit accordingly.

25A is the maximum current which can be allowed as input on the WPC, either generator input or Grid input.

7.2.3 Allow to overrun the maximum input current of the AC source

“Overrun AC source current limit without opening the transfer relay (Input limit)” {1436}. This parameter is set at “YES”; it means that if the power requested is more than can be delivered by the Smart-Boost, the AC input grid current will go over the programmed max input limit value. In case the limit was set to a low value because of low generator speed, it means that more power will be taken from the generator and it will speed up. Keep in mind however that the generator output power is limited by the engine power and if more than its max power is used, the generator will stop on overload.

If a AC grid line (or shore input) is overloaded, the circuit breaker may blow.

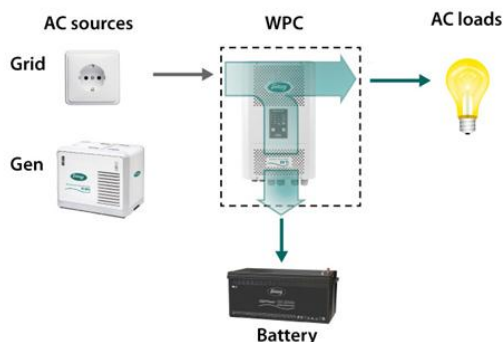
Parameter	Name	Default
1436	Overrun AC source current limit without opening the transfer relay	No

For example, the requested output power is 15A. Parameter 1567 is set to 13A. Then 13A will be delivered by the generator and 2A Smart-boosted by the inverter. If parameter 1567 is set to 6A, then 6A will be delivered by the generator and 9A Smart-boosted by the inverter. Now if the requested output goes up to 25A, the Smart-boost power is limited to 15A and because parameter 1436 is set to ‘Yes’, the power delivered from the generator (or grid input) will be 10A, possibly blowing a 6A fuse in case of grid input. Would the parameter be set to ‘No’, then the system will stop on ‘overload’ and a 6A fuse would not be blown.

7.2.4 Automatic selection of AC source

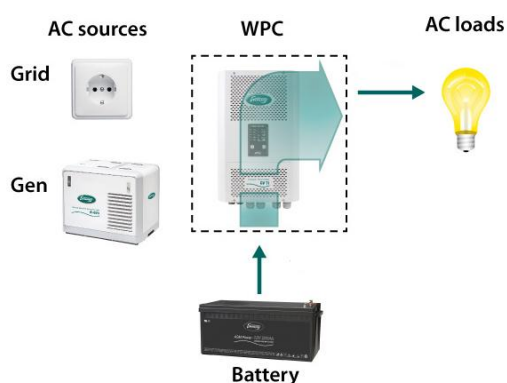
The WPC has an automatic switching AC input on the connection board. If the generator is running, it is used as the primary AC source. Otherwise the switches will be in the position to allow AC grid input power. Four situations can occur:

Situation 1:



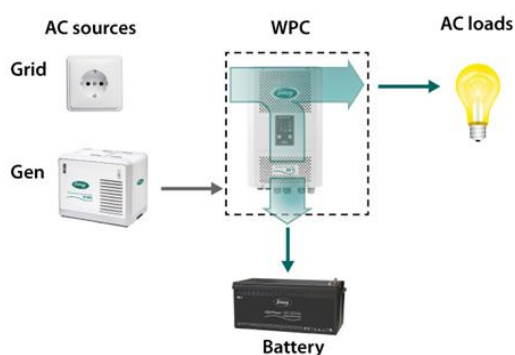
- Power is delivered from the AC grid (*limit set by parameter 1107*)
- The battery is automatically charged

Situation 2:



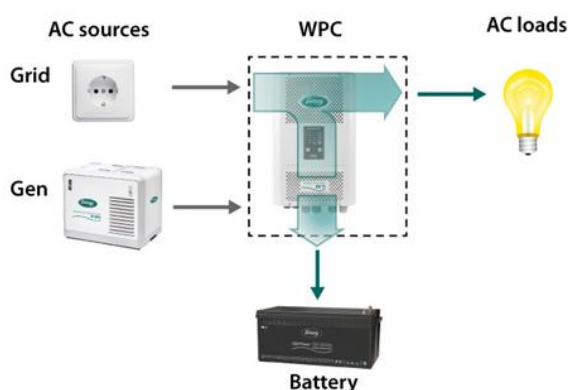
- The AC sources are disconnected
- The battery is supplying energy to the AC output through the inverter

Situation 3:



- Power is delivered from the AC generator (*limit set by parameter 1567*)
- The battery is automatically charged

Situation 4:



- Both AC sources are available
- The AC output is supplied by the preferred AC source (see page 24 for settings)
- The battery is automatically charged

7.3 AC OUTPUT

The WPC has a continuous AC output "Gen/Grid/Inv". It also has a switched AC output which is named Gen/Grid both located at the output board. This Gen/Grid output is switched on only when there is a valid AC input available. Figure 4 shows the AC output state when no AC input is available.

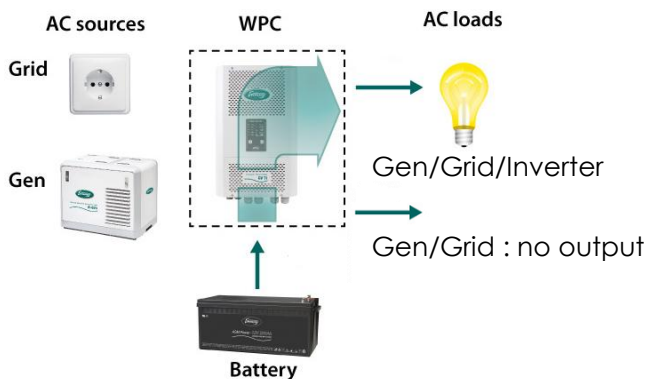


Figure 4 – AC out with no AC input available

Figure 5 shows the situation when there is AC input available, note that both the GGI and GG output are now active.

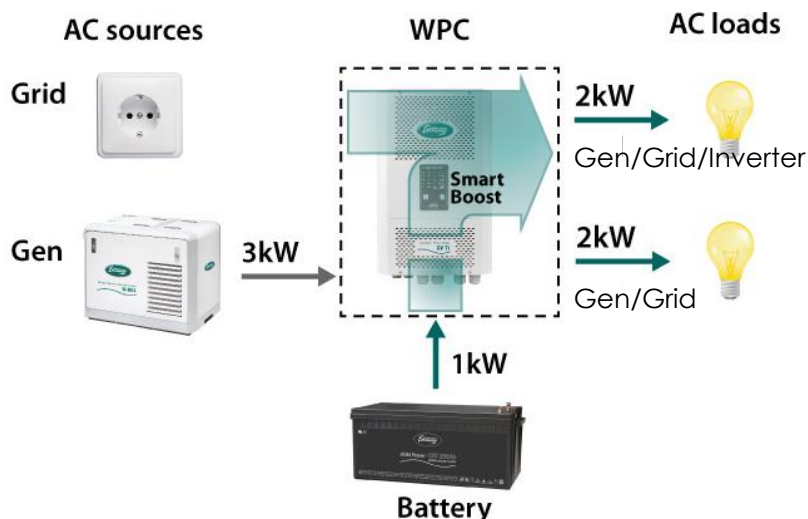


Figure 5 - AC out with AC input available

Connect devices which should not be powered by the batteries to the Gen/Grid output, such as boilers, battery chargers etc.. In case of an AC input loss, these devices will not drain the batteries because they are switched off automatically.

The state of the Gen/Grid output can be overruled by parameter [1311] "Operating mode AUX 2", it can be set to Off, On, Automatic and Reversed Automatic. The default setting is automatic.

Parameter	Name	Default
1311	Operating mode (Aux 2)	Automatic

If this parameter is set to On, then the Gen/Grid output will always be on, just like the Gen/Grid/Inverter output. If it is set to 'Off', there will never be AC output on the Gen/Grid AC output. If set to 'Reversed Automatic' then the Gen/Grid AC output will be on when there is no AC input(!) and Off when there is AC input.

7.4 AC GENERATOR BEHAVIOR

The output power of a variable speed generator depends directly on the speed of the engine. When the engine speed is too low for the power demand, the engine must increase its speed. The output voltage of the generator is temporarily decreased. To ensure a stable AC voltage at the output and to enable the engine to rev up, a permanent measurement of the input AC voltage is done by the WPC. The drop voltage is detected and the input current of the WPC is lowered to stabilize the voltage. Thereafter, the Smart-Boost function is used to help the generator with the necessary power. With that association, constant power is available even when the generator is running at low speed.

Parameters & descriptions

The following parameters allow controlling this function:

Parameter	Name	Default
1567	Second maximum current of AC source (Input limit)	13A

↳ is used to set the maximum current the generator can give.

Example for an generator of 3500W / 230Vac = 15Aac

Parameter	Name	Default
1554	Decrease max input limit activated by remote entry	Yes

↳ activates the function that decreases the max input limit current with the generator AC voltage.

Parameter	Name	Default
1126	Smart-Boost allowed	Yes

↳ helps the generator by adding the missing power when the motor speed is too low.

Parameter	Name	Default
1309	AC input low limit voltage to allow charger function	220V

↳ is the lowest input voltage (where the input current of the generator must be set at 0).

Parameter	Name	Default
1433	Adaptation range of the charge current according to the input voltage	5V

↳ is the range of voltage between whom the current will be adapted.

Parameter	Name	Default
1435	Immediate detection of input voltage loss	Tolerant

↳ Allows to starting the inverter mode as quick as possible in case of fluctuations of the AC-in grid. This function is useful when it comes to very sensitive loads that require an uninterruptible power supply (UPS).

Parameter	Name	Default
1575	AC-IN current active filtering	Yes

↳ regulates smooth power demand from the generator (or grid) which allows slow increase and decrease of the speed of the engine.

Principle of operation of parameter "Decrease max input limit current with AC-In voltage"

The max input current {1107} is decreased down to 0 at the {1309} voltage over a range given by the parameter {1433}. (See figure 2). The recommended values are 210V for the limit voltage {1309} and 10V for the voltage hysteresis {1433}. Thus, from 220V the max input current is decreased down and is at 0 when the voltage is at 210V. In this way, the WPC helps the generator when it can't provide enough power on account of a low-speed engine, to allow it to increase its speed.

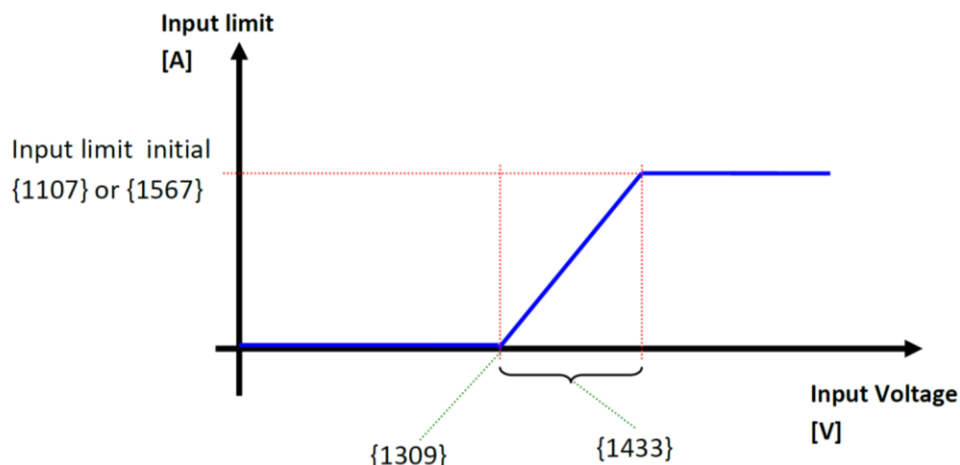


Figure 6 - Principle of the decrease of max input current

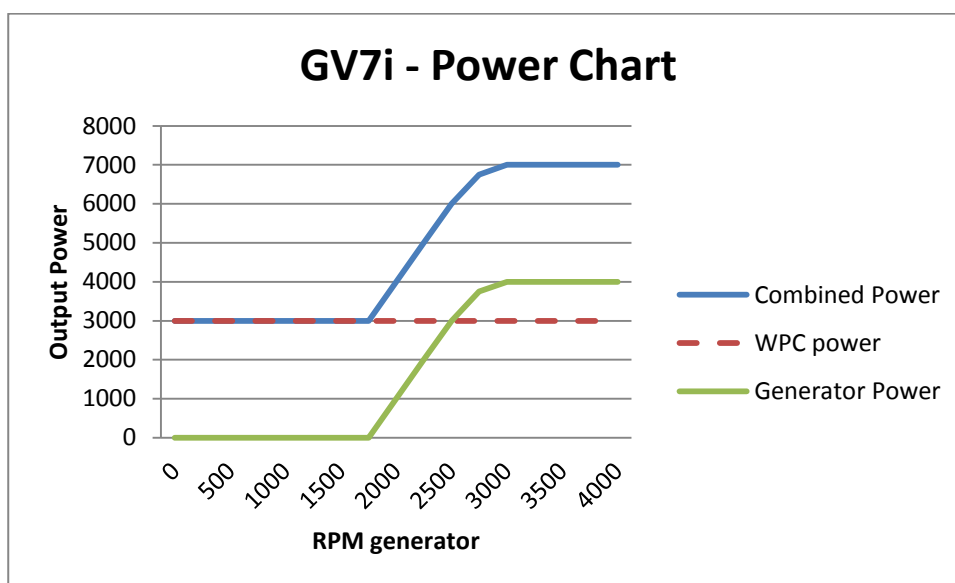


Figure 7 - Variable speed generator power curve and representation of ensured constant power and additional system power.

Note: Data shown in the figure is indicative and does not represent the actual power curve in the GV-7i situation.

7.5 USER SETTINGS: CONTROLLING THE VARIABLE SPEED GENSET POWER DEMAND

To enable a smooth and constant power demand of the generator of the GV-7i, the following parameters are set:

Parameter	Name	Default
1567	Second maximum current of AC source (Input limit)	13A
1575	AC-IN current active filtering	Yes
1436	Overrun AC source current limit without opening the transfer relay	No
1138	Battery charge current	45

The AC-IN active filtering function ensures that the power demand upon the genset does not change abruptly. It does this by Smart-boosting in case of a sudden load increase, or by charging the batteries in case of a sudden switch off of the load. Furthermore it tries to get the current and voltage of the AC input in phase as much as possible.

However, the AC-IN active filtering function can only boost up to 100% of its max power, which is

15A in the 24V model. In case of bigger load steps, the remaining power needed will be drawn from the generator. Also, the AC-IN active filtering function regulates only within the ac-input limit current range. In case AC-overflow is allowed (by default it is not allowed), it means that the AC-IN active filtering does not work if more current is drawn from the generator than set at the input current limit.

How to set these parameters may be a bit of experimenting. The main constraint is the type of load that is connected to the system:

1. When relatively big load steps are made (e.g. >2kW loads) regularly such as a heavy water cooker or vacuum cleaner, on top of a base load, it is best to set the input limit of the generator to a higher value, e.g. 10A or more (but not more than the max the generator can deliver).
2. If only small load steps are made (<1kW) such as chamber lights, computer etc.. with or without a base load, the input current limit can be set to a lower value to limit the engine speed of the generator, and set the 'Overflow AC source current limit' parameter to Yes.

If lowest operating speed of the generator is desired, two options are available:

1. Set the charging current to 40A or less. When the only load of the generator is the charger, 40A will make sure that the generator is running constantly at its lowest speed. The default is set to 40A because the charge current is also limited by the size of the battery, and 40A is allowed with the minimum set that is usable for the GV-7i.
2. The input limit current can be set to 6A. This causes the generator to operate at its lowest speed, and if additional power at the output is needed (>1300W), it is Smart boosted by the WPC.
However, if there is a base load of around 1kW or more and heavy loads (e.g. 3kW) are switched on, this will lead to a sudden load step upon the generator which causes a sudden increase in speed.
Also, to be able to supply use the total power of the system in this case, the 'Overflow AC source current limit' must be set to Yes.

Option 1 is preferred.

8 USER SETTING: AUTO START SETTINGS

Automatic start/stop is regulated by three main categories:

1. Battery state
2. AC power consumption
3. Silent times

Firstly, the automatic mode must be chosen on the DDC remote panel !

The automatic starting and stopping is controlled by switching on and off a signal on the DDC remote panel 'auto start' input. This signal is applied by the connection board on the WPC. Take care that the red wire of the cable is connected to the + pole of the connector, and the black wire to the – pole. Furthermore it is necessary to connect the both negative poles of the starter battery and the WPC battery. This is needed for correct functioning of the auto start function.

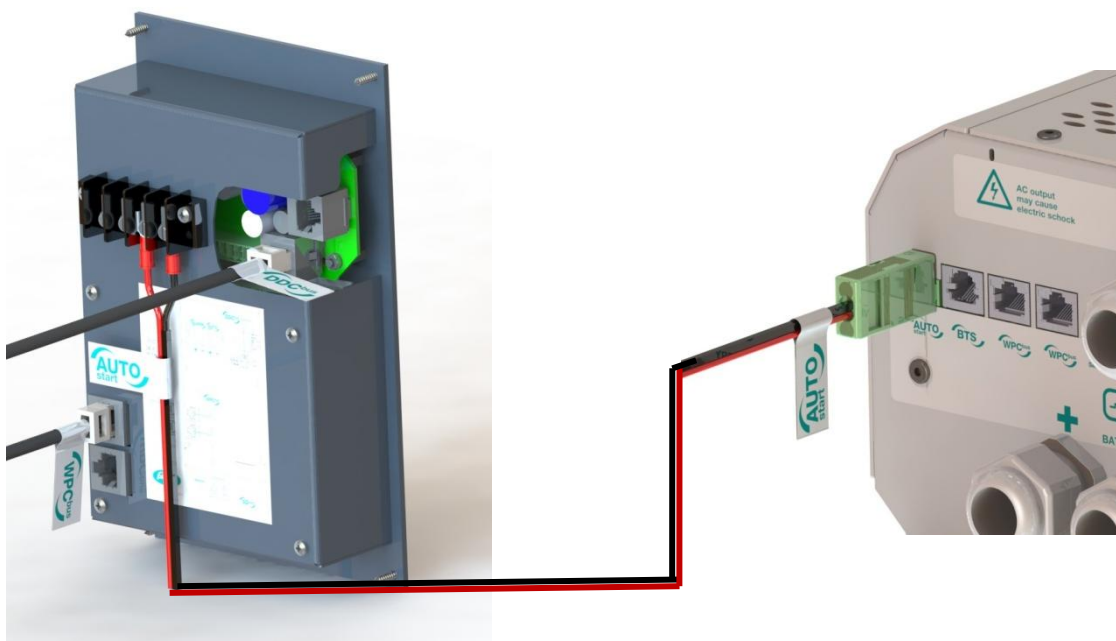


Figure 8 – Auto start connection

8.1 ENABLE AUTO START ON THE DDC

To enable the auto start function on the DDC control panel, go to the "select menu" using the select button. Then choose for the "auto start menu" and enable the "Auto start on switch" item. If needed first unlock the settings. Figure 9 shows the menu settings to make.

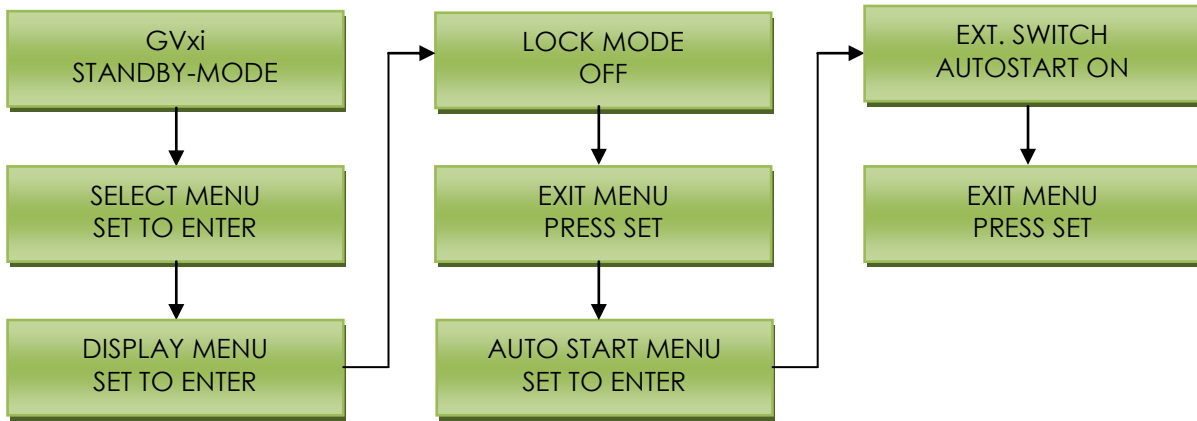


Figure 9 – Enabling the auto start function on the DDC remote panel

8.2 AUTO START ON BATTERY VOLTAGE

The WPC is capable to request a start when the battery voltage drops below a certain value. See table for default settings. To prevent this function from acting very rapidly, a delay can be set. This delay can be set from 0 to 60 minutes, default is 1 minute.

For the starting mode three voltage levels can be set, refer to the parameter list for the numbers. Using multiple voltage levels allows you to make a difference between a voltage level which must be present for a long time before the generator starts (slow discharge), or a lower level at which starting occurs directly (heavy discharge).

For the stopping threshold, only one level is available, refer to the parameter list for the numbers.

It is also possible to stop the generator when is the battery state has reached float; this is a state to top off the battery charge and take only low current. When the generator power is only used for charging, this is inefficient. Note that if AC input is present (not because of autostart), then the float cycle will be completed.

To activate:

Parameter	Name	Default
1288	Use dynamic compensation of battery level (AUX 1)	Yes
1246	Battery voltage 1 activate (AUX 1)	Yes
1247	Battery voltage 1 (AUX 1)	11.8
1248	Delay 1 (AUX 1)	1
1249	Battery voltage 2 activate (AUX 1)	Yes
1250	Battery voltage 2 (AUX 1)	12
1251	Delay 2 (AUX 1)	10
1252	Battery voltage 3 activate (AUX 1)	Yes
1253	Battery voltage 3 (AUX 1)	12.2
1254	Delay 3 (AUX 1)	60

To deactivate:

Parameter	Name	Default
1255	Battery voltage to deactivate (AUX 1)	13.6
1256	Delay to deactivate (AUX 1)	120
1516	Deactivate if battery in floating phase (AUX 1)	Yes

8.3 AUTO START ON BATTERY SOC (ONLY WITH BSI)

The BSI monitors the state of charge(SOC) of the battery. This is the percentage of the remaining battery energy. The WPC is able to start the generator according to this state of charge. Parameters for configuring this function are shown below.

To activate:

Parameter	Name	Default
1439	Contact activated with the SOC 1 of battery (AUX 1)	No
1440	Contact activated below SOC 1 (AUX 1)	50
1581	Delay 1 (AUX 1)	12
1582	Contact activated with the SOC 2 of battery (AUX 1)	No
1583	Contact activated below SOC 2 (AUX 1)	30
1584	Delay 2 (AUX 1)	.25
1585	Contact activated with the SOC 3 of battery (AUX 1)	No
1586	Contact activated below SOC 3 (AUX 1)	20
1587	Delay 3 (AUX 1)	0

To deactivate:

Parameter	Name	Default
1441	Contact deactivated over SOC (AUX 1)	90
1588	Delay to deactivate (AUX 1)	.25
1589	Deactivate if battery in floating phase (AUX 1)	Yes

8.4 AUTO START ON AC OUTPUT POWER

The WPC is capable of request a start when the AC output power is exceeding a certain value. This value is a percentage of the nominal power of the WPC (Pnom). By default 70% of Pnom (3000W for the 24V version) which is 2100W. To prevent this function from acting very rapidly, a delay can be set. This delay can be set from 0 to 60 minutes, default is 1 minute.

Using multiple power levels allows you to make a difference between a power level which must be present for a long time before the generator starts, or a higher level at which starting occurs directly (heavy load, immediate assistance needed). For the stopping threshold, only one level is available, refer to the parameter list for the numbers.

To activate:

	Contact active with inverter power or Smart-Boost (AUX 1)	Default	
1258	Inverter power level 1 activate (AUX 1)	Yes	No/Yes
1259	Power level 1 (AUX 1)	70	% Pnom
1260	Time delay 1 (AUX 1)	15	min

1261	Inverter power level 2 activate (AUX 1)	Yes	No/Yes
1262	Power level 2 (AUX 1)	100	% Pnom
1263	Time delay 2 (AUX 1)	5	min
1264	Inverter power level 3 activate (AUX 1)	Yes	No/Yes
1265	Power level 3 (AUX 1)	110	% Pnom
1266	Time delay 3 (AUX 1)	1	min

To deactivate:

	Contact active with inverter power or Smart-Boost (AUX 1)	Default	
1267	Inverter power level to deactivate (AUX 1)	40	% Pnom
1268	Time delay to deactivate (AUX 1)	5	min

8.5 ENABLE A SILENT PERIOD

To prevent the generator from automatically starting within a specified period (e.g. at night), it is possible to set a silent period. Setting a silent period is done using the program parameters of the AUX 1 signal. Below are the parameters listed, in total you can set 5 different programs.

	Temporal restrictions (AUX 1)	default	
1203	Program 1 (AUX 1)		
1204	Day of the week (AUX 1)	-- -- -- -- - - --	Days
1205	Start hour (AUX 1)	07:00	hh:mm
1206	End hour (AUX 1)	20:00	hh:mm
1207	Program 2 (AUX 1)		
1208	Day of the week (AUX 1)	-- -- -- -- - - --	Days
1209	Start hour (AUX 1)	07:00	hh:mm
1210	End hour (AUX 1)	20:00	hh:mm
1211	Program 3 (AUX 1)		
1212	Day of the week (AUX 1)	-- -- -- -- - - --	Days
1213	Start hour (AUX 1)	07:00	hh:mm
1214	End hour (AUX 1)	20:00	hh:mm
1215	Program 4 (AUX 1)		
1216	Day of the week (AUX 1)	-- -- -- -- - - --	Days
1217	Start hour (AUX 1)	07:00	hh:mm
1218	End hour (AUX 1)	20:00	hh:mm
1219	Program 5 (AUX 1)		
1220	Day of the week (AUX 1)	-- -- -- -- -	Days

		- --	
1222	Start hour (AUX 1)	07:00	hh:mm
1223	End hour (AUX 1)	20:00	hh:mm

Important: the period cannot be set over midnight. If the required silent time is e.g. from 22.00pm till 7.00am, then two periods have to be programmed.

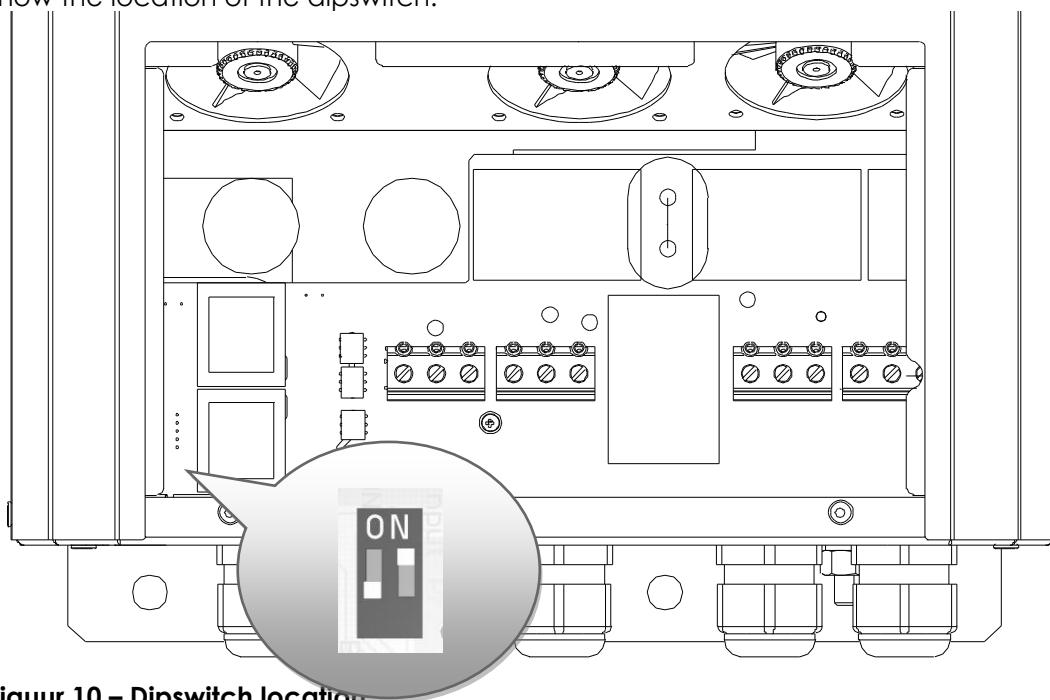
Period 1 start hour: 22.00, end hour: 24.00

Period 2 start hour: 00.00, end hour: 7.00

It is also possible to automatically start on fixed intervals instead of upon load or battery demand. This is however not typical for the GV-7i installation. Refer to manual for details.

8.6 USER PREFERENCE: DIPSWITCH FUNCTIONS

To set the behavior of the input switching component of the WPC a dipswitch is available at the input switching board. To access it, open the connection compartment cover. The figure below show the location of the dipswitch.



Figuur 10 – Dipswitch location

Dipswitch	Function	Default
1	Prohibit automatic start when grid is available	Off
2	Preferred input ON = Generator Off = Grid	On

8.6.1 Prohibit automatic start when grid is available

Default the generator will automatically start when one of auto start criteria is met. It starts even when the is AC grid is connected. In some cases the AC grid can supply more power than the generator. In this situation it is most likely that starting of the generator is not wanted. To prohibit the generator from starting in this situation set the upper dipswitch to the "ON" position. Now the Autostart signal will indicate "start" only when there is no grid available. Refer to the figure above for the position of the dipswitch.



8.6.2 Preferred input

When both AC inputs are available, this setting will determine which AC input is passed through for power delivery.



NOTE

9 NOTES





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